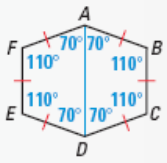
Geometry Unit 6 Review (pp 319-381)

1. What is your name?

6.1 **POLYGONS** *Examples on pp. 322–324*

EXAMPLES Hexagon $ABCDEF$ is convex and equilateral. It is not regular because it is not both equilateral and equiangular. $\overline{AD}$ is a diagonal of $ABCDEF$. The sum of the measures of the interior angles of quadrilateral $ABCD$ is 360°.

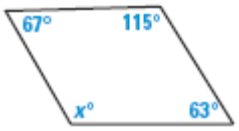


2. Sketch a concave octagon.

3. What makes a polygon regular?

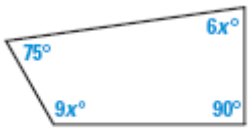
Find the value of x.

4.



5.

6.



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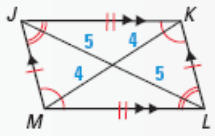
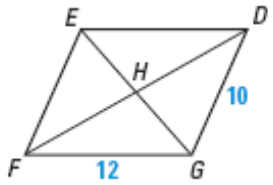
6.2 PROPERTIES OF PARALLELOGRAMS

Examples on pp. 330–333

EXAMPLES Quadrilateral *JKLM* is a parallelogram. Opposite sides are parallel and congruent. Opposite angles are congruent. Consecutive angles are supplementary. The diagonals bisect each other.



Use parallelogram DEFGH to answer the following questions.



7. If *DH* = 9.5, find *FH* and *DF*.

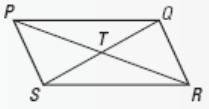
8. If $m\angle GDE = 65°$, find $m\angle EFG$ & $m\angle DEF$.

9. Find the perimeter of $\square DEFG$.

6.3 PROVING QUADRILATERALS ARE PARALLELOGRAMS

Examples on pp. 338–341

EXAMPLES You are given that $\overline{PQ} \cong \overline{RS}$ and $\overline{PS} \cong \overline{RQ}$. Since both pairs of opposite sides are congruent, *PQRS* must be a parallelogram.



Is PQRS a parallelogram? Explain why or why not.

10. $PQ = QR$
$RS = SP$

11. $\angle SPQ \cong \angle QRS$
$\angle PQR \cong \angle RSP$

12. $\overline{PS} \cong \overline{RQ}$
$\overline{PQ} \parallel \overline{RS}$

13. $m\angle PSR + m\angle SRQ = 180°$
$\angle PSR \cong \angle RQP$

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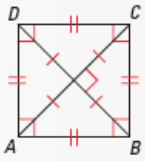
6.4 **RHOMBUSES, RECTANGLES, AND SQUARES** *Examples on pp. 347–350*

EXAMPLES *ABCD* is a rhombus since it has 4 congruent sides. The diagonals of a rhombus are perpendicular and each one bisects a pair of opposite angles.

ABCD is a rectangle since it has 4 right angles. The diagonals of a rectangle are congruent.

ABCD is a square since it has 4 congruent sides and 4 right angles.



List each special quadrilateral for which the statement is always true. Consider parallelograms, rectangles, rhombuses, and squares.

14. Diagonals are perpendicular.

15. Opposite sides are parallel.

16. It is equilateral.

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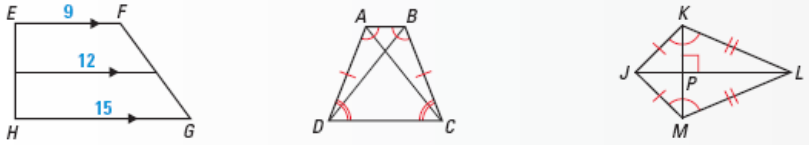
6.5 TRAPEZOIDS AND KITES

Examples on pp. 356–358

EXAMPLES *EFGH* is a trapezoid. *ABCD* is an isosceles trapezoid. Its base angles and diagonals are congruent. *JKLM* is a kite. Its diagonals are perpendicular, and one pair of opposite angles are congruent.



Use the diagram of isosceles trapezoid *ABCD*.

17. If *AB* = 6 and *CD* = 16, find the length of the midsegment.

18. If $m\angle DAB = 112°$, find the measures of the other angles of ABCD.

19. Explain how you could use congruent triangles to show that $\angle ACD \cong \angle BDC$.

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6.6 **SPECIAL QUADRILATERALS** *Examples on pp. 364–366*

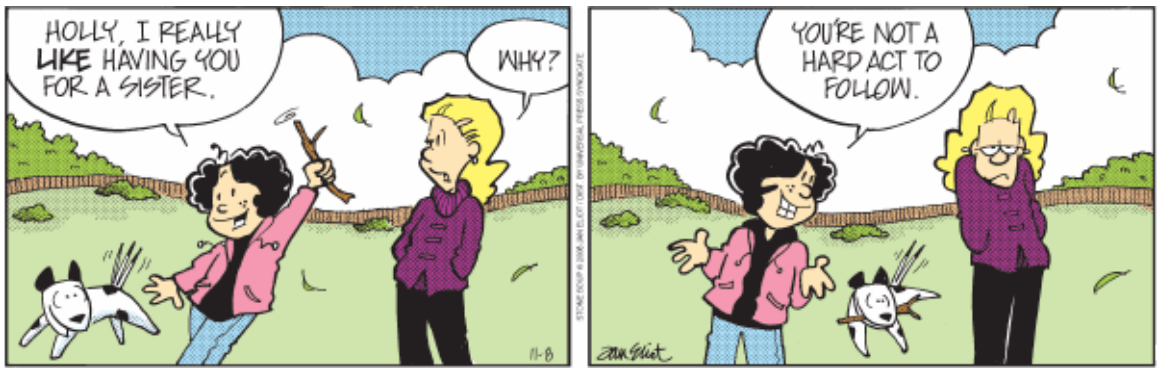
EXAMPLES To prove that a quadrilateral is a rhombus, you can use any one of the following methods.

- Show that it has four congruent sides.
- Show that it is a parallelogram whose diagonals are perpendicular.
- Show that each diagonal bisects a pair of opposite angles.

What special type of quadrilateral is *PQRS*? Give the most specific name, and justify your answer.

20. P(0, 3), Q(5, 6), R(2, 11), & S(-3, 8).

21. P(0, 0), Q(6, 8), R(8, 5) & S(4, -6)



22. P(2, -1), Q(4, -5), R(0, -3), & S(-2, 1)

23. P(-5, 0), Q(-3, 6), R(1, 6), & S(1, 2)

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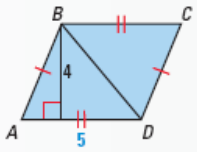
6.7 AREAS OF TRIANGLES AND QUADRILATERALS

Examples on pp. 372–375

EXAMPLES

Area of $\square ABCD = bh = 5 \cdot 4 = 20$

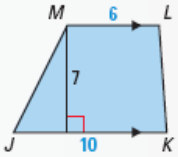
Area of $\triangle ABD = \frac{1}{2}bh = \frac{1}{2} \cdot 5 \cdot 4 = 10$



Area of trapezoid $JKLM = \frac{1}{2}h(b_1 + b_2)$

$= \frac{1}{2} \cdot 7 \cdot (10 + 6)$

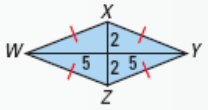
$= 56$



Area of rhombus $WXYZ = \frac{1}{2}d_1d_2$

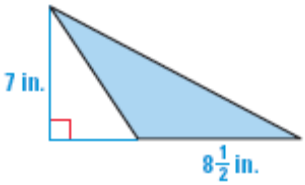
$= \frac{1}{2} \cdot 10 \cdot 4$

$= 20$

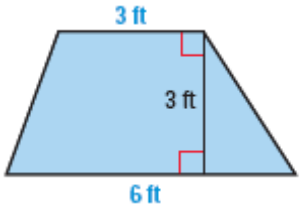


Find the area of the triangle or quadrilateral.

24.



25.



26.